

IN THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended). A power back-off method to mitigate the effects of far-end crosstalk (FEXT) noise in a communication system comprising at least one transmitter k, the transmitter k transmitting to a central site via a corresponding channel, the method comprising:

determining a transmit power spectral density for the transmitter k, $S(f, l_k)$, according to:

$$S(f, l_k) = \left(\frac{l_k}{l_R} \right)^v \frac{S(f, l_R) \cdot |H(f, l_R)|^2}{|H(f, l_k)|^2} \text{ for } l_k \leq l_R$$

wherein l_k is a channel length of the channel corresponding to the transmitter k, $H(f, l_k)$ is a channel transfer function of the channel corresponding to the transmitter k, l_R is a reference channel length, $H(f, l_R)$ is a reference channel transfer function, $S(f, l_R)$ is a reference transmit power spectral density, and $v \neq -1$ or 0; and

controlling transmitter k to transmit at the transmit power spectral density $S(f, l_k)$.

2. (Original). A power back-off method, as per claim 1, wherein v is set close to one to provide substantially equalized data rates for channels of the communication system.

3. (Original). A power back-off method, as per claim 2, wherein v is set to approximately 0.95.

1 4. (Original). A power back-off method, as per claim 1, wherein said communication system is
2 a VDSL system.

1 5. (Original). A communication system comprising:
2 at least one transmitter k, the transmitter transmitting to the central site with a
3 transmit power spectral density $S(f, l_k)$ via a corresponding channel, wherein the channel
4 has a length l_k and a channel transfer function $H(f, l_k)$; and
5 wherein the transmit power spectral density $S(f, l_k)$ is governed according to:

6
$$S(f, l_k) = \left(\frac{l_k}{l_R} \right)^v \frac{S(f, l_R) \cdot |H(f, l_R)|^2}{|H(f, l_k)|^2} \text{ for } l_k \leq l_R$$

7 where l_R is a reference channel length, $H(f, l_R)$ is a reference channel transfer function,
8 $S(f, l_R)$ is a reference transmit power spectral density, and $v \neq -1$ or 0 .

1 6. (Original). A communication system, as per claim 5, wherein v is set close to one to provide
2 substantially equalized data rates for channels of the communication system.

1 7. (Original). A communication system, as per claim 6, wherein v is set to approximately 0.95.

1 8. (Original). A communication system, as per claim 5, wherein said communication system is a
2 VDSL system.

1 9. (Canceled).

1 10. (Canceled).

1 11. (Canceled).

1 12. (Canceled).

1 13. (Currently Amended). A transmitter that transmits on a channel in a communication
2 system comprising; wherein the

3 a transmitter transmitting element that transmits with a transmit power spectral density
4 $S(f, l_k)$ that is controlled to provide substantially equal data rates for each channel in the
5 communication system, said transmit power spectral density $S(f, l_k)$ is defined as:

6
$$S(f, l_k) = \left(\frac{l_k}{l_R} \right)^v \frac{S(f, l_R) \cdot |H(f, l_R)|^2}{|H(f, l_k)|^2} \text{ for } l_k \leq l_R$$

7 wherein l_k is a channel length of the channel that the transmitter transmits on, $H(f, l_k)$ is a channel
8 transfer function of the channel that the transmitter transmits on, $S(f, l_R)$ is a reference transmit
9 power spectral density, l_R is a reference channel length, $H(f, l_R)$ is a reference channel transfer
10 function, and v is close to one.

1 14. (Canceled).

1 15. (Currently Amended). A transmitter that transmits on a channel in a communication
2 system, as per claim ~~14~~13, wherein v is set to approximately 0.95.

1 16. (Original). A transmitter that transmits on a channel in a communication system, as per claim
2 13, wherein the transmitter and the channel are part of a VDSL system.

1 17. (Currently Amended). A power back-off method to mitigate the effects of far-end
2 crosstalk (FEXT)FEXT noise in a communication system comprising at least one transmitter k,
3 the transmitter k transmitting to a central site via a corresponding channel, the method
4 comprising:

5 determining the transmit power spectral density for the transmitter k, $S(f, l_k)$,
6 according to:

$$S(f, l_k) = G \cdot \left(\frac{l_k}{l_R} \right)^v \frac{S(f, l_R) \cdot |H(f, l_R)|^2}{|H(f, l_k)|^2} \quad \text{for } l_k \leq l_R$$

8 wherein l_k is a channel length of the channel corresponding to the transmitter k, $H(f, l_k)$ is
9 a channel transfer function of the channel corresponding to the transmitter k, l_R is a
10 reference channel length, $H(f, l_R)$ is a reference channel transfer function, $S(f, l_R)$ is a
11 reference transmit power spectral density, and G has a value that depends on the channel
12 length l_k such that two or more data rate service areas are defined; and

13 controlling transmitter k to transmit at the transmit power spectral density $S(f, l_k)$.

1 18. (Original). A power back-off method, as per claim 17, wherein $G > 1$ for channel length l_k less
2 than a length l_{R1} that delineates a first data rate service area and $G = 1$ for channel length l_k greater
3 than the length l_{R1} so as to define a second data rate service area.

1 19. (Original). A power back-off method, as per claim 17, wherein v is set close to one to
2 provide substantially equalized data rates for channels of the communication system.

1 20. (Original).A power back-off method, as per claim 19, wherein v is set to approximately
2 0.95.

1 21. (Original).A power back-off method, as per claim 17, wherein said communication system is
2 a VDSL system.

1 22. (Original). A communication system comprising:

2 at least one transmitter k , the transmitter transmitting to the central site with a
3 transmit power spectral density $S(f, l_k)$ via a corresponding channel, wherein the channel
4 has a length l_k and a reference channel transfer function $H(f, l_k)$; and
5 wherein the transmit power spectral density $S(f, l_k)$ is governed according to:

6
$$S(f, l_k) = G \cdot \left(\frac{l_k}{l_R} \right)^v \frac{S(f, l_R) \cdot |H(f, l_R)|^2}{|H(f, l_k)|^2} \quad \text{for } l_k \leq l_R$$

7 where l_R is a reference channel length, $H(f, l_R)$ is a reference channel transfer function,
8 $S(f, l_R)$ is a reference transmit power spectral density , and G has a value that depends on
9 the channel length l_k such that two or more data rate service areas are defined.

1 23. (Original).A communication system, as per claim 22, wherein $G > 1$ for channel length l_k less
2 than a length l_{R1} that delineates a first data rate service area and $G = 1$ for channel length l_k greater
3 than the length l_{R1} so as to define a second data rate service area.

1 24. (Original).A communication system, as per claim 22, wherein v is set close to one to
2 provide substantially equalized data rates for channels of the communication system.

1 25. (Original).A communication system, as per claim 24, wherein v is set to approximately
2 0.95.

1 26. (Original).A communication system, as per claim 22, wherein said communication system is
2 a VDSL system.

1 27. (Canceled).

1 28. (Canceled).

1 29. (Canceled).

1 30. (Canceled).

1 31. (Canceled).